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ECONOMIC INTELLIGENCE REPORT

GENERALIZED ASSESSMENT OF ECONOMIC DAMAGE TO THE SOVIET BLOC IN THE EVENT OF A COMPLETE SEVERANCE OF EAST-WEST TRADE



EIC-R-3

31 August 1953

Prepared Jointly by US Intelligence Agencies

ECONOMIC INTELLIGENCE COMMITTEE

W A R N I N G

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FOREWORD

This report has been reviewed by an EIC Working Group containing representatives of the following agencies: Central Intelligence Agency; Departments of Agriculture, Air Force, Army, Commerce, Interior, Navy, State, and Treasury; Munitions Board; and Foreign Operations Administration. This Working Group and the EIC itself have approved the report as meeting the primary purpose for which it was designed, namely, generalized assessment of economic damage to the Soviet Bloc in the event of a complete severance of East-West trade. The EIC's approval of the report implies that it has agreed that changes in detailed estimates that might reasonably be made would not significantly alter the conclusions of the report. Such approval does not imply that all agencies have agreed on every statistical estimate in the report. On the contrary, the EIC wishes to stress the weakness of many specific figures and to discourage use of this report as a primary source of information on trade data, industrial statistics, prices, and any other special details from which the answers to basic problems were constructed. This report is not designed to provide accuracy in details as well as general answers and should not be cited or quoted as an authoritative source of such details. Similarly, details should not be lifted from this report and quoted as officially sanctioned estimates of any particular agency.

This report was completed in September 1952. Although various estimates of details have been revised since that time, these revisions have not materially altered the conclusions of the report. However, in order to minimize the danger that the detailed estimates in this report will be taken as superseding estimates published in specialized reports, ORR/CIA has tried to review these revisions and to include them as footnotes in this report. In conducting this review, the estimates in this report have been checked against estimates appearing in NIE-59 and against estimates carried by ORR/CIA as of 9 April 1953, the date of IAC approval of NIE-59. The footnotes containing revised estimates are enclosed in brackets to indicate that they have not been reviewed by the EIC or the EIC Working Group.

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References to Appendixes A to E in the text of this report are to unapproved drafts on file in the EIC secretariat. Copies of these appendixes are available upon request.

Readers are referred to NIE-59 for approved conclusions of the subject of this report.

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GENERALIZED ASSESSMENT OF ECONOMIC DAMAGE TO THE SOVIET BLOC
IN THE EVENT OF A COMPLETE SEVERANCE OF EAST-WEST TRADE

Summary

This report presents a summarized assessment of the effects of a complete severance of trade on the economic capabilities of the Soviet Bloc to wage war. It is designed primarily to aid long-range planning, with little attention directed to providing information needed for the day-to-day operations of a trade restriction program. All estimates of costs to the Bloc of trade severance are built upon a shaky foundation of information. It is impossible to trace through the costs industry by industry or area by area. Reasonably adequate estimates can be made of aggregate costs to the economy as a whole over the long run, and some meaningful generalizations also can be made about the probable behavior of aggregate costs in the short run. The problem of short-run bottlenecks has been examined, and a serious attempt has been made to estimate costs of breaking those bottlenecks. All estimates must be regarded as rough orders of magnitude subject to considerable margins of error, which are wider for the short-run than for the long-run estimates.

With the above qualifications in mind, EIC believes that annual long-run costs to the Soviet Bloc of a complete severance of trade would run on the order of 7.3 billion rubles or about \$900 million. They might range as low as 5 billion rubles (about \$625 million) or as high as 11 billion rubles (about \$1.4 billion). There would have to be an adjustment period of 3 to 4 years before annual costs would fall to this level. During the adjustment period, costs would be considerably higher, although the likely magnitudes are almost impossible to determine. The following figures are illustrative of the pattern costs that could be expected over the adjustment period: 17 billion rubles in the first year; 11 billion, in the second; 9 billion, in the third; and 7.5 billion, in the fourth. It must be recognized, however, that short-run estimates are subject to a very wide margin of error.

An annual long-run cost of 7.3 billion rubles would represent about 0.4 percent of the Soviet Bloc gross national product in the early years after full internal adjustment, the percentage declining

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thereafter as costs remained constant while gross national product rose. Short-run costs of 17 billion rubles in the first year after trade severance would represent about 1.3 percent of Bloc gross national product. Hence, annual costs might be expected to run on the order of 1.3 percent of Bloc gross national product immediately after trade severance, declining to about 0.4 percent within 4 years.

Short-run costs, at least during the first year or two, probably would bear directly on the investment and military sectors of the Soviet Bloc economy and, therefore, would cause military production to be lower than otherwise in either the immediate or more remote future. The combined production of investment goods and munitions might be 3 to 4 percent less in the first year after trade severance than it otherwise would have been. After the first few years, however, the full cost could be borne by the civilian sector if consumption levels were held to as little as 1 percent less than they otherwise would be.

Trade severance would have a negligible effect on economic capabilities to support a brief and limited war, because of the sizable inventories of weapons already available to the Soviet Bloc. On the other hand, trade severance would induce a noticeable but far from crippling reduction in economic capabilities to support a war of attrition if the war started shortly thereafter. The same might hold for a war of attrition started several years after severance, although it is conceivable in this case that severance might actually strengthen Bloc economic capabilities if the loss of trade in fact shocked the Bloc into stepping up its self-sufficiency program at the expense of the civilian sector.

The above estimates of cost exclude a few important factors that defy quantitative expression. No account is taken, for instance, of the additional strain imposed on the organizational and planning mechanisms of the Soviet Bloc. The failure to receive Western technological advancements in the form of prototype equipment is another important cost not fully allowed for. In addition, none of the argument of this report applies directly to the effects of current restrictions of trade. Conclusions apply exclusively to complete severance of trade at current levels. The estimate of current levels of trade is not intended to represent accurately the amount of trade that actually took place in 1952. This estimate was necessarily made

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long before data for 1952 were available and, in fact, before data for the full year 1951 were compiled. Hence, insofar as East-West trade has been changing in size and composition, conclusions must be modified accordingly.

A. Statement of the Problem.

The primary objective of this report is to estimate costs to the Soviet Bloc if existing East-West trade is severed, particularly as those costs relate to economic capabilities.* Another report discusses the problems of defining those costs and of establishing the analytical framework appropriate for measuring them. 1/** Its conclusions will be indicated here only in concise summary as required for the development of the focal problem.

None of the argument of this report applies directly to the effects of restrictions of trade up to the present. The argument applies exclusively to restrictions beyond current levels.

In the event of a trade severance, the economic cost to the Soviet Bloc can be conceived of as the aggregate reduction in output of all products, except exports, that would be required if previous imports were to be fully replaced with acceptable substitutes. That cost would affect economic capabilities to the extent that reductions in output must occur in industries producing military goods. The cost should be measured in aggregative terms for two reasons. First, it is impossible to specify which outputs would be reduced and by how much. The Russians could choose any one of innumerable combinations of reductions in order to divert resources to make up for the loss of imports. Hence, even if our ignorance of the details of the intricate interrelationships within the Soviet economy were suddenly displaced

* For this report, Soviet Bloc includes the USSR, Albania, Bulgaria, Communist China, Czechoslovakia, East Germany, Hungary, Poland, and Rumania. The West includes the rest of the world except North Korea and Viet Minh.

** Footnote references in arabic numerals are to sources listed in the Appendix.

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by vast knowledge, the best that we could do would be to make an arbitrary selection of a few of the innumerable possible combinations, which selection could serve at best as illustrative of what might happen. Such an approach is dangerous because it creates the misleading impression that we can accurately predict the detailed adjustments that would occur within the Bloc. Second, such a detailed picture of possible reductions in output in many diverse industries would not be very meaningful to those who must decide policies. If this were the only kind of information available, it would scarcely be possible to assess comparative damage to East and West. At some stage, information must be summarized (that is, aggregated) and presented in a manner that facilitates judgment on the comparative cost of severing trade.

The annual costs of trade severance would change over the period following, being highest in the immediately succeeding period and dropping as sufficient time passes to allow for reshuffling of resources and for breaking "bottlenecks." Because of serious practical difficulties in tracing through the trend of costs from the beginning of the adjustment period forward, it is most convenient to calculate first the annual costs after all desired and possible rearrangements of resources have been achieved. This calculation can be thought of as the basic estimate of costs. Although the basic estimate obviously gives only part of the story, use of it in the initial stages of measuring costs is desirable because it can be adjusted subsequently to reflect any set of circumstances in the transitional period that might be dictated by the strategic situation.

In the calculation of costs of trade severance, it is assumed that the Soviet Bloc would be able, sooner or later, to produce acceptable substitutes for present imports. This assumption is primarily a judgment derived from general economic reasoning and from historical evidence demonstrating success in other economies under similar circumstances.* The assumption is supported by evidence that the Bloc possesses the necessary technical skill to match Western performance in limited fields of high priority, as is shown, for instance, by Soviet achievements in atomic energy.** Since highly

* German success with ersatz materials is an outstanding example.

** It should be noted that the ability of the Soviet Bloc to produce acceptable substitutes has been carefully examined by ORR/CIA technicians. They are confident that substitutes can be produced for all imports, insofar as those imports can be identified from trade statistics. The statement in the text is worded with caution on the grounds that some imports may not be properly identified.

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specialized imports not now produced in the Bloc represent in the aggregate a very small proportion of its gross national product, diversion of technical and scientific resources to develop substitutes should not present an insoluble problem.

It is further assumed that the Soviet Bloc is gaining economically from trade with the West. That is, it is assumed that the decisions on items to be traded are determined primarily by considerations of relative cost, not by tactics of political warfare, and that costs of production are calculated by the Bloc with reasonable accuracy. Bloc trade before World War II can be characterized in this manner, and current trends in trading are rather clearly linked with trends in that period. Moreover, most of the exchanges make economic sense.

It should be recognized that this report is concerned solely with the economic aspects of trade severance and ignores the wide range of political considerations. Within the economic sphere, the primary approach is quantitative. The attempt to reduce economic costs to quantitative magnitudes should not be interpreted, however, to imply that those economic factors that elude measurement are necessarily of a lower order of importance. These factors should be kept continually in mind as modifiers of any quantitative measure; they are in no sense extraneous. Among these unmeasurables are the disturbances to the organizational structure and to technological progress. For instance, the difficulties that the complex and relatively inflexible Soviet planning mechanism might encounter in adjusting to trade severance cannot be easily expressed in any single-dimensioned measurement of cost. Some of these difficulties are of a more subtle nature than might first be imagined. It is quite conceivable, for instance, that East-West trade now serves as a convenient mechanism for correcting planning errors and failures to meet plans. If trade were cut off, the Bloc would have to provide some internal mechanism to meet such contingencies, and this might well mean that a considerable expansion of inventories would be required in many directions. Another loss that cannot be minimized would be failure to keep up with Western technology through importation of prototypes.

B. Historical Setting.

During the last 20 years a primary objective of Soviet economic policy has been the achievement of economic self-sufficiency. In 1941 a prominent Soviet economist stated that "the main goal of Soviet importation is to utilize the foreign products and, above all, the

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foreign machinery ... for the technical and economic independence of the USSR Importation by the USSR is so organized that it aids the speediest liberation from imports, The USSR exports its merchandise only in order to pay for the comparatively small quantity of imported merchandise needed for the speediest fulfillment of the economic plans." 2/

Developments over the last 20 years, with the exception of World War II, reflect a conscious effort to decrease the reliance of the USSR on foreign trade. Imports probably reached a peak of around 4 percent of gross national product in 1930, during the First Five Year Plan (1928-32), when the USSR was actively building up its industries with the aid of foreign-made equipment. By 1937, the end of the Second Five Year Plan (1933-37), the relative importance of imports had declined so much that they constituted less than 1 percent of gross national product. The importance of imports rose under the Lend-Lease program but fell off rapidly again in the postwar period. In 1947, imports again constituted about 1 percent of gross national product; in 1949, much less than 1 percent.

Although trade with the West is more important for the rest of the Soviet Bloc economy than for the USSR, a similar trend toward declining reliance can be traced over the last 5 years. Trade has been reoriented toward intra-Bloc exchanges. The trade policy of the Satellites is reflected in part in the statement that "in planning foreign trade between People's Democracies and capitalist countries, it is not the aim of the former to secure the broadest development of these relations ... but to establish relations which will facilitate the strengthening of the given country in its position as a socialist state." 3/

The trend in value of East-West trade from 1948 through 1951 is shown in Table 1.* It must be noted that those indexes refer to value, and not to volume, of trade. Unfortunately, little information has been gathered together on the precise behavior of prices of items flowing in East-West trade. The prices of Soviet Bloc imports rose substantially during 1950 and 1951, thus almost certainly leading to no increase in the volume of Bloc imports and probably to a decrease.

* Table 1 follows on p. 7.

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Table 1

Indexes of the Value of East-West Merchandise Trade
1948-51

Year	Soviet Bloc Exports a/		Soviet Bloc Imports a/	
	Index 1948: 100	Annual Change (Percent)	Index 1948: 100	Annual Change (Percent)
1948	100	0	100	0
1949	86	-14	78	-22
1950	76	-12	66	-15
1951	86	+13	75	+14

a. Based on value of merchandise trade as reported by Western trading partners, adjusted to an f.o.b. basis. See unapproved appendixes for basic data.

The composition of trade also changed over this period. As shown in Table 2,* there were significant increases in the percentages of total Soviet Bloc imports accounted for by the following types of commodities: rubber and rubber products; textile fibers; primary metals, ores, and metal products; and machinery. Detail is lacking on the types of imports whose relative importance diminished. Among exports, the percentage accounted for by forest products and food-stuffs probably increased, whereas the percentages accounted for by other classifications, insofar as they can be reasonably estimated, probably remained about the same.

The foregoing data must be qualified by recognition of the fact that statistics of East-West trade are notably weak. They must be derived primarily from official reports of Western trading partners without any possibility of checking these data against similar reports by Soviet Bloc countries. Exports and imports must be rather arbitrarily adjusted to a comparable basis, both either including or excluding freight charges. Estimates of total trade are almost certainly understated by an undeterminable amount. Estimates of trade in specific commodity categories are subject to even wider margins of

* Table 2 follows on p. 8.

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Table 2

Estimated Percentage Distribution of East-West Trade by Selected
 Commodity Classifications
 1948-49 and 1951

Commodity	Percent		
	Soviet Bloc Exports ^{4/}		
	1948	1949	1950 ^{a/}
Grains and Cereals	10	10	12
Other Foodstuffs	13	14	24
Forest Products	2	2	6
Coal and Related Fuels	11	12	10
All Other	64	62	47
Total Exports	<u>100</u>	<u>100</u>	<u>100</u>
Soviet Bloc Imports			
Rubber and Rubber Products	6	5	13
Textile Fibers	14	20	17
Chemical Products	3	4	6
Primary Metals, Ores, and Metal Products	6	6	9
Machinery	15	18	18
Electrical	(2)	(3)	(3)
Other	(13)	(14)	(14)
All Other	56	48	37
Total Imports	<u>100</u>	<u>100</u>	<u>100</u>

a. Data for first half of 1951 taken from unapproved appendixes,
 Table 6. ^{5/}

error of undeterminable direction, arising from differences in commodity breakdowns employed by reporting countries, from deficiencies in the details of reporting, and from likely attempts to disguise the nature of trade.

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The noted deficiencies are less serious in some uses of trade data than in others. In comparing the trade of the Soviet Bloc with its gross national product, a sizable error in trade data would not significantly endanger conclusions, because of the relatively small magnitude represented by any conceivable trade figure. More confidence can also be attached to trends in trade expressed in percentage terms, since similar percentage errors tend to occur in estimates for each of the years involved. For similar reasons, changes in the commodity breakdown of trade are more reliably indicated by comparing percentage composition in different years than by comparing absolute composition.

C. Current Magnitude and Composition of East-West Trade.

The current annual Soviet Bloc merchandise imports (and exports) are from \$1.6 billion to \$1.7 billion, in terms of 1951 prices.* This level of trade is roughly equal to the volume in 1951.

The probable composition of trade by commodities and countries is shown in Tables 3 and 4** [which show both the original estimates made for this report and, more summarily, the subsequent ORR revisions thereof]. It should be re-emphasized that only a moderate degree of confidence can be placed in the commodity breakdown because of the deficiencies in basic information pointed out in the preceding section. About half of the value of Soviet Bloc imports is accounted for by rubber and rubber products, cotton, wool, and machinery. Each of these categories accounts for about a tenth or more of the total value of imports. Imports of most commodities are small relative to total Bloc supplies, notable exceptions being wool, rubber, certain chemicals, specialized types of machinery, and materials used in production of electron tubes and components. The bulk of exports is composed of agricultural products, forest products, and coal.

* See unapproved appendixes. [ORR/CIA has since made an estimate that 1951 Soviet Bloc exports to the West were about \$1.8 billion; Bloc imports from the West were about \$1.7 billion.]

** Tables 3 and 4 follow on pp. 10-11.

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Table 3

Estimated Current Percentage Distribution of Soviet Bloc Exports
by Selected Commodity Classifications and by Area 5/
1952

Commodity Classification	Total Soviet Bloc	USSR	European Satellites	China
Grains and Cereals	14.9	46.4	4.3	8.2
Meat and Meat Preparations	4.7	0.4	7.9	0.9
Other Food, Drink, Tobacco	13.9	9.6	11.6	20.8
Fats, Oils, Seeds	8.9	0.6	1.4	26.9
Forest Products and Manufactures	5.7	11.6	6.0	0.6
Coal and Related Products	9.1	0.6	18.7	0.1
Petroleum	2.4	1.0	4.6	<u>a/</u>
Nonferrous Ores, Metals, and Manufactures	0.8	0.4	1.3	0.4
Machinery	2.1	0.1	4.2	0.1
Fertilizers	1.1	0.7	1.9	<u>a/</u>
Cotton, Raw and Manufactures	3.0	1.6	2.5	4.8
Wool, Raw and Manufactures	1.9	.9	1.5	3.3
Other Exports	32.1	26.1	34.1	33.9
Total Exports c.i.f. <u>b/</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

a. Insignificant (less than .1 of 1 percent).

b. Cost, insurance, and freight.

Table 3a

ORR/CIA Revised Estimates of Current Percentage Distribution
of Soviet Bloc Exports by Selected Commodity Classifications
and by Area a/
1952

Commodity Classification	Total Soviet Bloc	USSR	European Satellites	China
Food, Beverages, and Tobacco	29.8	46.4	24.5	26.1
Fats and Oils	9.9	0.5	1.4	30.6
Forest Products and Manufactures	6.8	17.3	5.1	1.7
Textile Fibers and Manufactures	8.0	4.0	7.2	12.4
Coal	13.0	2.5	26.1	0.0
Nonmetallic Minerals (excluding Coal) and Manufactures	3.6	2.0	6.2	0.8
Chemicals	3.3	0.8	4.1	4.0
Ferrous and Nonferrous Metals and Manufactures	1.8	2.1	2.4	0.8
Machinery and Transport Equipment	2.9	0.4	5.8	0.1
Other Exports	20.8	23.8	17.6	23.6
Total Exports	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

a. ORR/CIA estimates have not been approved by the EIC. See Foreword
for explanation.

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Table 4

Estimated Current Percentage Distribution of Soviet Bloc Imports
by Selected Commodity Classifications and by Area 1/
1952

<u>Commodity Classification</u>	<u>Total</u> <u>Soviet Bloc</u>	<u>USSR</u>	<u>European</u> <u>Satellites</u>	<u>China</u>
Fish and Products	1.6	1.3	2.3	<u>a/</u>
Coffee, Tea, Cocoa	1.3	5.3	0.3	<u>a/</u>
Other Food, Drink, Tobacco	2.8	1.7	3.9	1.3
Rubber, Crude and Manufactures	10.2	18.9	3.3	19.2
Forest Products and Manufactures	5.6	15.3	2.2	5.1
Cotton, Raw and Manufactures	9.4	<u>a/</u>	11.1	14.0
Wool, Raw and Manufactures	10.7	10.3	14.9	0.8
Petroleum	0.1	<u>a/</u>	0.1	<u>a/</u>
Coal and Related Products	0.5	<u>a/</u>	0.9	<u>a/</u>
Nonferrous Metals	2.7	1.7	3.9	0.6
Iron and Steel Products and Manufactures	5.3	3.2	7.0	3.2
Machinery	15.3	18.5	16.6	8.9
Transport Equipment	6.4	16.1	4.5	2.0
Fertilizers	0.8	<u>a/</u>	1.1	1.0
Other Imports	27.3	7.7	27.9	43.9
Total Imports f.o.b. <u>b/</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

a. Insignificant (less than .1 of 1 percent).

b. Freight on board.

Table 4a

ORR/CIA Revised Estimates of Current Percentage Distribution
of Soviet Bloc Imports by Selected Commodity Classifications
and by Area 8/ a/
1952

<u>Commodity Classification</u>	<u>Total</u> <u>Soviet Bloc</u>	<u>USSR</u>	<u>European</u> <u>Satellites</u>	<u>China</u>
Foods, Beverages, and Tobacco	6.8	7.5	9.4	1.3
Fats and Oils	1.3	2.1	1.6	0.2
Crude Rubber	12.8	21.8	3.5	21.9
Raw Cotton	7.6	0.0	9.9	9.8
Raw Wool	6.8	4.8	11.4	0.4
Other Fibers and Textile Manufactures	7.4	2.8	8.5	9.3
Iron Ore, Iron and Steel Manufactures	6.9	2.5	7.3	9.9
Nonferrous Ores, Metals and Manufactures	2.4	1.5	3.8	0.7
Chemicals	8.6	0.9	6.5	18.6
Machinery	14.4	18.2	16.8	7.0
Transport Equipment	6.7	18.3	3.6	2.5
Other Imports	18.2	19.5	17.5	18.3
Total Imports	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

a. ORR/CIA estimates have not been approved by the EIC. See Foreword
for explanation.

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D. Economic Costs to the Soviet Bloc.

1. Annual Cost after Full Internal Adjustment.

As pointed out before, it is most convenient to attack the problem of measuring costs to the Soviet Bloc by focusing first on the conditions that would prevail in the long run: that is, after enough time had elapsed to permit full internal adjustment. The problem of adjustment is essentially one of shifting resources and of changing their forms. If previous imports had to be replaced fully, resources would have to be transferred from other more productive uses to import-replacing industries. These resources would be used to increase output in existing plants, to expand productive capacity, and, in some cases, to develop new substitutes. 9/* On the basis of present knowledge of the Bloc economy, it is estimated that almost all desired and possible adjustments of this nature could be accomplished within 4 years, in most sectors within a much shorter time. Having made these adjustments, the Bloc would find itself with an allocation of resources different from what would have existed in the absence of trade severance. The gross national product would be lower than it otherwise would have been.** This reduction in gross national product would be the annual economic cost to the Bloc.

One procedure for estimating the long-run cost is to trace through the amounts of different kinds of resources that would be required, under the best achievable productive conditions, in order to raise internal production of previously imported commodities just enough to cover lost imports. The resources released by ceasing to export should be taken as an offsetting "gain." The cost of trade severance would be considered to be equivalent to the removal of a bloc of "basic" resources.

The usefulness of such an approach is severely limited by two shortcomings. In the first place, we have inadequate knowledge of the commodity composition of trade and of the basic technological conditions of Soviet production. As a result, any list of resources

* These matters are discussed more fully in a separate publication.
** The foregoing reasoning is based on the assumptions that trade has been primarily motivated by economic considerations and that costs of production have been calculated by the Soviet Bloc with reasonable accuracy. These assumptions are supported by the history of East-West trade and by the fact that the exchanges make economic sense.

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is certain to be incomplete, and specific items are subject to sizable error. In the second place, a list of resources conveys little meaningful and relevant information to a person who is not intimately familiar with the nature of the economies of both the Soviet Bloc and the West.

The weaknesses of this approach are abundantly illustrated in Tables 5 and 6,* which summarize the best estimates of resource costs that can be made at this time. Only a small fraction of traded commodities is covered, no more than a third of imports and no more than a half of exports by value. Moreover, for the commodities covered, significant portions of production costs are not included, such as the cost of using plant and equipment.

Table 5

Estimated Annual Requirements of Physical Inputs for Replacement of Certain Soviet Bloc Imports in the Fourth and Succeeding Years after Complete Severance of East-West Trade a/**

<u>Inputs</u>	<u>Units</u>	<u>Annual Requirements</u>	<u>Percent of Annual Domestic Supply b/</u>
Labor			
Agricultural	man-years	481,718	0.2
Industrial	man-years	90,838	0.1
Steel	metric tons	351,020	0.9
Aluminum	metric tons	1,717	0.6
Copper	metric tons	9,725	3.0
Coal	metric tons	1,433,973	0.4
Electric Power	thousand kilowatt hours	535,662	c/
POL	metric tons	61,993	0.1
Rubber	metric tons	588	0.2
Coke	metric tons	9,795	c/
Lumber	thousand board feet	20,174	0.2

* Table 6 follows on p. 16.
 ** Footnotes for Table 5 follow on p. 15.

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Table 5

Estimated Annual Requirements of Physical Inputs for Replacement of Certain Soviet Bloc Imports in the Fourth and Succeeding Years after Complete Severance of East-West Trade a/

Inputs	Units	Annual Requirements	Percent of Annual Domestic Supply <u>b/</u>
Timber	cubic meters	1,271	<u>d/</u>
Coke-Chemicals	metric tons	199	<u>c/</u>
Transport	thousand ton-kilometers	185,643	<u>c/</u>
Trucks	units	3	<u>c/</u>
Rolling Stock	4-axle units	17	<u>c/</u>
Railroad Rails	metric tons	400	<u>c/</u>
Rubber Tires	units	30,733	0.3
Ball Bearings	units	826,880	0.8
Electron Tubes	units	822	<u>c/</u>
Miscellaneous			
Nonferrous Metals	metric tons	1,662	<u>d/</u>
Poles	cords	8,200	<u>d/</u>
45-Percent Ammonia Dynamite	metric tons	350	<u>d/</u>
Safety Fuses .6 x 6	thousand feet	3,039	<u>d/</u>
Blasting Caps	thousand units	4,420	<u>d/</u>
Iron Ore	metric tons	256,230	0.5
Limestone	metric tons	67,455	<u>d/</u>
Manganese Ore	metric tons	20,290	0.5
Manganese	metric tons	3,925	<u>c/</u>
Fertilizer	metric tons	27,052	0.3 <u>e/</u>
Abrasives	metric tons	416	<u>c/</u>
Cutting Tools	thousand units	5,954	<u>d/</u>
Tire Tubes	units	30,100	<u>d/</u>
Noncastings	metric tons	9,850	<u>d/</u>
Motors	kilowatts	57,300	<u>c/</u>
Synthetic			
Cryolite	metric tons	301	<u>d/</u>
Caustic Soda	metric tons	5,372	0.9
Crysolic Acid	metric tons	51	<u>d/</u>

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Table 5

Estimated Annual Requirements of Physical Inputs for Replacement of Certain Soviet Bloc Imports in the Fourth and Succeeding Years after Complete Severance of East-West Trade a/

<u>Inputs</u>	<u>Units</u>	<u>Annual Requirements</u>	<u>Percent of Annual Domestic Supply b/</u>
Cellulose	metric tons	5,242	d/
Carbon Sulfide	metric tons	1,407	d/
Sulfuric Anhydride	metric tons	4,902	d/
Gas	thousand cubic feet	48,927	0.2

a. These inputs would be required to replace the following Soviet Bloc imports: aluminum, copper, iron ore, pig iron, cotton, wool, synthetic fibers, jute, coffee, tea, cocoa, railway equipment, automotive equipment, general industrial machinery, antifriction bearings, machine tools, ships and boats, electric machinery, and electronics equipment. These imports account for about a third of the value of all imports.

b. Domestic supply is taken as of 1951. Estimates of both domestic supply and imports may have changed since these percentages were computed, but it is unlikely that the percentages would be significantly altered.]

c. Insignificant (less than .1 of 1 percent).

d. Domestic supply has not been compiled.

e. Percent of domestic supply of USSR.

Although the resource-cost approach is not satisfactory by itself, it provides a useful and necessary starting point for evaluation of costs. Resource costs can be translated into "monetary" terms by using Soviet prices, which are available for many resources. Insofar as prices reflect actual costs of production, such a monetary

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Table 6

Estimated Physical Inputs Annually Released if
the Soviet Bloc Ceased to Export Certain Commodities a/

<u>Input</u>	<u>Units</u>	<u>Quantity Released Annually</u>	<u>Percent of Annual Domestic Supply <u>b/</u></u>
Labor			
Agricultural (USSR)	man-years	317,556	0.6 <u>c/</u>
Agricultural (China)	man-years	270,833	0.2 <u>d/</u>
Light Industry	man-years	141,440	0.4
Heavy Industry	man-years	32,500	0.4
Explosives	metric tons	1,500	0.5
Steel	metric tons	115	<u>e/</u>
Copper	metric tons	32	<u>e/</u>
Coal	metric tons	103,942	0.1
Electric Power	thousand kilowatt hours	198,153	<u>e/</u>
POL	metric tons	44,983	0.1
Rubber	metric tons	330	0.1
Timber	cubic meters	21,540	<u>f/</u>
Transport	thousand ton-kilometers	1,884,679	0.2 <u>c/</u>
Fertilizer	metric tons	3,240	<u>c/ e/</u>

a. These inputs would be released if the Soviet Bloc ceased to export the following commodities: grains and grain preparations; vegetable oils, including oil cake and seed; meat and meat preparations; tobacco; sugar products; beverages; and coal. These exports account for something less than a half of the value of all exports.

b. Domestic supply is taken as of 1951. Estimates of both domestic supply and imports may have changed since these percentages were computed, but it is unlikely that the percentages would be significantly altered.

c. Percent of domestic supply of USSR.

d. Percent of domestic supply of China.

e. Insignificant (less than .1 of 1 percent).

f. Domestic supply has not been compiled.

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expression is in effect an aggregation of resource costs.* The ruble costs of producing the samples of commodities covered by resource costs can be extended to cover broader categories of related commodities. In addition, crude adjustments can be made on the basis of US information to provide for inclusion of costs of using plant and equipment.**

On the basis of calculations of this nature, the annual cost to the Soviet Bloc after full internal adjustment turns out to be 7.3 billion rubles, or about \$900 million, worth of resources*** (see Table 7****). This estimate is considered to be the best that can now be made, but costs could easily be higher or lower. It is very difficult to determine the probable direction of bias because there are deficiencies in analysis and data that suggest both under- and overstatement.

Two deficiencies suggest understatement of costs. First, calculations were made on the basis of constant costs in the import-replacing industries.***** That is, it was assumed that unit costs

* That is, within technical limits resources can be substituted for each other without reducing output at about the rate represented by their relative prices. Although little is known of the functions performed by the elaborate Soviet pricing structure, EIC believes that in recent times most industrial prices have borne a fairly close relation to costs of production. It seems to be clear in any event that the Russians calculate costs on the basis of quoted prices.

** See unapproved appendixes for a more complete discussion of the kinds of adjustments made.

*** Roughly in terms of 1951 prices and on the basis of productive conditions of the current period.

**** Table 7 follows on p. 18.

***** Constant costs mean in effect constant returns to investment in the industry. Costs were calculated on the basis of a constant ratio of plant and equipment to direct resources. Therefore, the cost of using the additional capital required for expansion of import-replacing industries is implicitly included in the estimate of annual costs. Whether the implicit estimate is accurate or not is another question. It should be noted that this method of computing investment costs implies that there is no net increase in investment in the economy as a whole, capital merely being shifted from other sectors of the economy.

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Table 7

Estimate of Annual Cost to the Soviet Bloc in the
Fourth and Succeeding Years after Complete Severance
of East-West Trade a/

	<u>Billion Rubles b/</u>
Cost of Replacing Imports	12.5
Value of Resources Released from Production of Exports	-5.2
Net Cost of Replacing Imports	<u>7.3</u>

a. See unapproved appendixes.

b. The ruble-dollar cost ratio for imports is taken as 8 to 1; and that for exports, as 3 to 1.

of production would not rise significantly with expansion in the scale of operations of those industries. This assumption may be unrealistic for some industries, particularly those in which a relatively large expansion of output must take place. Second, costs have been calculated for the Soviet Bloc as a unit, on the assumption that resources would be reallocated on that basis. If each area of the Bloc were forced to shift for itself, aggregate costs might be considerably higher.

On the other hand, two deficiencies suggest an overstatement. First, the assumption of constant costs also was applied to the export industries. To the extent that unit costs might decline with reductions in output, this assumption introduces an element of upward bias in the estimate of costs. Second, the cost of fully replacing imports has been taken as the cost imposed by loss of imports. In most cases this measure of costs is probably quite reasonable. There may well be some items, however, for which the cost of replacement would exceed their economic value, in which case the items simply would not be fully replaced.

Finally, some factors introduce a bias of undeterminable direction. Within the framework of assumptions mentioned above, calculation of costs is, of course, subject to a wide margin of error.

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Moreover, certain items of costs that might be quantitatively estimated have not been taken into account. For instance, no detailed calculations have been made of the effect of trade severance on transportation costs. Although there is a strong presumption that transportation costs would fall because of Soviet Bloc exports, whose production would be eliminated, are in general bulkier than imports, whose production would be expanded,* the Bloc would be faced with a difficult problem in trying to replace Western merchant shipping now engaged in intra-Bloc trade.**

Even though the probable bias cannot be reliably estimated, some indication of the upper and lower bounds of long-run annual costs can be derived from average ruble-dollar ratios for traded items that can be calculated on the basis of resource costs, output priced, and a mixture of the two.*** The three average ratios are 6.9 to 1, 9.8 to 1, and 8.1 to 1, respectively, with the latter being taken as the best estimate. The lowest ratio is about 15 percent lower than the best estimate; the highest, about 21 percent higher.

If all the considerations stated above are taken into account, it seems likely that long-run annual costs would not be less than 5 billion rubles (about \$625 million) or more than 11 billion rubles (about \$1.4 billion), with 7.3 billion rubles (about \$900 million) considered as the best estimate. This cost would constitute between 0.3 and 0.7 percent of the Soviet Bloc gross national product in the early years after full internal adjustment, the best estimate being 0.4 percent. The percentage would decline thereafter as Bloc gross national product continued to increase.****

It should be recognized that costs can be forecast and interpreted only by assuming that there will be no radical unforeseen developments in technology or availability of resources. In this sense projections are always "static." Economics simply has not progressed to the stage at which changes in these basic conditions can be adequately forecast or allowed for in projection of costs.

* Total Soviet Bloc imports apparently amounted to about 5 million metric tons in 1951 whereas exports amounted to about 20 million metric tons.

** The analysis presented on page 8 of NIE-59 contains a modified and more meaningful evaluation of this shipping problem.

10/ *** See unapproved appendixes.

**** Soviet Bloc gross national product is taken as 1,600 billion to 1,800 billion rubles in the fourth year after trade severance (1956). This estimate probably errs on the low side.

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One real problem in East-West trade not adequately handled, for instance, is the loss that would be imposed on the Soviet Bloc by denying access to the West's technical, research, and engineering experience, all of which get embodied in certain types of machinery, drugs, and so on. Without these convenient prototypes, the Bloc would have to supply its own designing, testing, and engineering. Since a large part of the past pool of Western technology has already been passed on to the Bloc, denial of access to new developments is the major accomplishment that could be anticipated from trade restrictions in the future.* The magnitude of cost that the Bloc would encounter if denied these new technical developments depends on the strategic context and the time period involved. In making up the loss, the Bloc would have to choose between sacrificing quality of future production (by failing to expand its research and development program) and quantity of current investment (by, in fact, expanding such a program). As in the case for all costs, the rate of cost in the future depends on the extent to which losses are taken in the form of reductions in current income: that is, on the rapidity with which a complete adjustment is carried out.

2. Annual Cost during the Adjustment Period.

Little confidence can be placed in any detailed picture of short-run costs that can be derived from the current storehouse of economic intelligence. The immediate impact of trade severance depends on the degree to which Soviet Bloc imports are bottleneck items and upon the difficulties involved in breaking those bottlenecks. EIC is hampered all around by inadequate information; insufficient details on traded commodities, weak knowledge of industrial inter-relationships, poor information on costs of production of specific commodities, almost no reliable information on the problems encountered in construction work, and the like. The details that might be most misleading in measuring long-run costs become essential for calculating short-run costs. Without those details, the picture of the short run can be nothing more than a modified version of the long run; and its meaningfulness and usefulness, although not destroyed, are severely limited.

* [This information would continue to be available in part in technical and scientific journals, trade journals, technical books, and industrial catalogs, most of which are easily accessible to Bloc nationals.]

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If all trade were suddenly cut off without warning, the Soviet Bloc would be faced with the problem of either reducing its consumption of imported items or finding replacements. Replacement could be instantaneous only to the extent that sizable stockpiles of lost items exist, since some period of time must transpire before internal production could be expanded. If stockpiles are not sufficiently large to absorb the full shock until internal production offsets lost imports, some production or some final consumption must fall. The damage would be small to the extent that imports constitute a small fraction of total supplies and have many different uses throughout the economy. "Bottlenecks" will appear for imports constituting a large fraction of total supplies and having important uses that are few in number and for which substitutes could not be found easily. In the latter case, losses easily could become a multiple of the normal value of the import, as the indirect repercussions spread throughout the economy. The length of time during which such heavy costs would persist would depend on the rates at which imports could be replaced out of domestic production. The estimated rates at which imports could be replaced are shown in Table 8.* The annual rates are expressed as values and as percentages of total value of imports to be replaced. These estimates indicate that the rates of replacement would be sufficiently high to account for about 65 percent of the aggregate value of imports by the end of the first year, for about 78 percent by the end of the second year, for 94 percent by the end of the third year, and for all by the end of the fourth year. Replacement would proceed most slowly in the case of electron tubes and components, chemicals, crude rubber, and wool,** electrical machinery, and ships and boats. It should be noted that replacement is expressed in annual rates in order to facilitate the following discussion. Actual replacement in any year would be less than these rates. For instance, less than 11 percent of previous annual imports of electrical machinery would actually get replaced in the first year since the rate of replacement would range from zero at the beginning of the year to 11 percent at the end. Hence the fraction actually replaced within the year would probably be on the order of 5 percent.

Most of the items now imported into the Soviet Bloc would not qualify as potential bottlenecks, on the grounds either of representing a large fraction of Bloc supplies or of having important uses that are

* Table 8 follows on p. 22.

** Wool should not be included here. J

Table 8

Estimated Annual Rate of Replacement of Soviet Bloc Imports
after Complete Severance of East-West Trade a/*

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Commodity	Annual Rate of Replacement at End of					
	First Year		Second Year		Third Year	
	Value Million \$	Percent Being Replaced	Value Million \$	Percent Being Replaced	Value Million \$	Percent Being Replaced
Electron Tubes and Components	0	0	0	0	0	4
Chemicals	0	0	41	50	82	100
Crude Rubber b/	0	0	76	50	153	100
Coal c/	16	10	31	20	78	50
Electrical Machinery	6	11	12	22	52	100
Chips and Boats	26	39	65	98	67	67
Commodities not Studied d/	129	65	154	78	186	94
All Other Commodities	830	100	830	100	830	100
All Commodities	<u>1,007</u>	65	<u>1,209</u>	78	<u>1,448</u>	<u>94</u>
						<u>1,542</u>

Footnotes to Table 8 follow on p. 23.

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Table 8

Estimated Annual Rate of Replacement of Soviet Bloc Imports
after Complete Severance of East-West Trade 3/*
(Continued)

See unapproved appendixes. [Revisions of the trade data would change some specific figures but probably would not materially alter totals.] Natural rubber would be replaced by synthetic and reclaimed. Wool would be replaced by mixtures of rayon, wool, and other synthetic fibers. These are miscellaneous commodities which could not be adequately identified or about which almost nothing is known regarding time required for replacement. The rate of replacement for these items is taken as the average rate for all commodities, except this miscellaneous group. The miscellaneous group includes tin, miscellaneous nonmetallic minerals, industrial diamonds, crude inedible materials, scientific and precision instruments, photographic equipment, and "all other commodities."

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few in number and for which substitutes are not easily found. Current imports of foodstuffs, forest products, cotton products, most non-ferrous metals, fuels, iron and steel products, fertilizers, and a sizable fraction of miscellaneous products could be given up without serious and immediate repercussions in the Bloc economy. These items represent at least half the value of Bloc imports (see Table 4*). Loss of the remaining items might conceivably lead to bottleneck problems of varying orders of magnitude. The outstanding candidates as potential bottlenecks would be wool, rubber, certain chemicals, specialized types of machinery, and electron tubes and components.** (See Table 9***) In each of these cases, imports represent a large fraction of Bloc annual supplies, although it is by no means clear to what extent imports are earmarked for stockpiles rather than current consumption. In view of the general attempt by the Bloc to free itself from dependence on foreign economies, a good case can be made for the presumption that at least some of these commodities are being imported in relatively large quantities in order to build up a stockpile that can carry the Bloc over the period during which internal production is to be expanded. Although little direct evidence is available on this score, EIC believes, for instance, that it is entirely possible that the Bloc has accumulated a stockpile of natural rubber that could sustain production of mixed natural and synthetic rubber products for several years at current rates of production. That is, the estimated annual consumption of rubber products accounts for only a small portion of imports of natural rubber. Moreover, in the case of most of these potential bottleneck items, EIC believes that Bloc production could fully replace imports within a short period of time. For almost all types of machinery, it probably would be only a year before the rate of replacement were high enough to cover current imports; for rubber, chemicals, and electrical machinery, it probably would be 2 years; and for wool and electron tubes and components, it might be as long as 4 years.****

* P. 11, above.

** Several important commodities should be added to the list, including cork, tin, zinc, lead, and batteries. The fraction of Bloc production represented by Bloc imports should be about 10 percent for wool instead of 38 percent; about 11 percent for copper instead of 4 percent; and about 7 percent for antifriction bearings instead of 11 percent. These changes probably would not affect significantly the calculations of total bottleneck costs.

*** Table 9 follows on p. 25.

**** Wool could probably be replaced within 2 years.

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Table 9

Selected Soviet Bloc Imports as Percentages
of Total Soviet Bloc Production a/
1951

<u>Commodity</u>	<u>Percent</u>
Steel	1
Aluminum	2
Machine Tools b/	4
Copper	4
Cotton	6
Antifriction Bearings c/	11
Wool	38
Rubber d/	47

a. See unapproved appendixes, Table 17. Information in this table has been superseded. 11/7

b. All types of machine tools, expressed in units.

c. All types of antifriction bearings, expressed in units.

d. Crude rubber imports as percentage of production of synthetic rubber.

The Soviet Bloc imports almost 40 percent of its annual supply of wool.* The imports are all apparel wool. As much as 10 years would be required to replace lost imports if replacement were accomplished solely by increasing domestic production of wool. By mixing rayon and other synthetic fibers with wool, acceptable replacement of lost imports could occur in a much shorter period, however, easily within 4 years. The decline in cloth in the transitional period would, of course, have its primary effects in the civilian sector and could be met in large part merely by wearing clothes a little thinner. Germany managed to get along with insignificant amounts of both wool and cotton during World War II, relying exclusively on unblended synthetic fibers.

* The current estimate is 10 percent.

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In the case of rubber, the primary question centers around the extent to which natural rubber can be dispensed with. There is little doubt that the Soviet Bloc could raise its production of synthetic rubber very rapidly to meet the current consumption of natural rubber.* However, mixtures of synthetic and natural are presently considered to be superior for tires and drug sundries, although inferior for almost all other rubber products. Satisfactory tires can be made without the use of natural rubber but the wearing quality suffers somewhat. For most types of tires the only significant result is a shorter life, so that more tires have to be produced for the same amount of traffic. The problem is more serious for airplane tires since the chance of rupturing on landing is considerably increased if natural rubber is not used. The current stockpile of natural rubber is almost certainly large enough to allow continued production of airplane tires for a number of years. The outlook after existing stockpiles are exhausted is less certain; much will depend on developments in rubber technology, which are outside the limits of discussion here.**

The chemicals industry of the Soviet Bloc is well diversified and based on advanced technical know-how. Highly competent technicians and skilled personnel are available in relatively large numbers. The specific types of chemical products imported are not definitely known, but they are probably specialty items, high in price and low in bulk.*** Importing these commodities frees the Bloc

* The recently announced Soviet Fifth Five Year Plan (1951-55) prescribes an annual increase in production of synthetic rubber by about 16 percent, which EIC believes to be well within the capabilities of the Soviet synthetic rubber industry. Under additional pressure the rate of increase could be stepped up markedly.

** ORR/CIA technicians well acquainted with technological developments in the rubber industry feel that natural rubber will soon be completely displaced by superior synthetic rubber. They believe that the Russians have an advanced rubber industry and almost certainly know as much about new developments as Western technicians, if not more. There is evidence, for instance, that the "cold rubber" process was developed in the USSR as early as 1940, whereas it was first introduced in the US around 1949.

*** Such items probably can be smuggled into the Soviet Bloc with little difficulty. Hence a complete trade embargo might have, in fact, very little effect on trade in chemicals.

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chemical industry to concentrate on heavier chemicals that are needed in larger quantity. EIC believes that the Bloc possesses sufficient technical know-how to produce all the items now imported, the main problem being expansion of productive facilities. This expansion probably could be accomplished within a maximum of 2 years.

The machinery industry presents a complex picture. The primary weaknesses in the Soviet Bloc occur in the area of electrical machinery and electronic equipment. Although the Bloc may be importing certain specialized types of machine tools and antifriction bearings not now being produced in large quantity at home, the machine tool and related industries are highly developed and diversified. In addition, the existing inventory of such machines may be large relative to current imports, thus lessening the shock caused by lost imports. Basic skills and equipment can be transferred rather quickly from other segments of the machine tool industry and applied to replacing lost types. It is pertinent to point out that imports of machine tools constitute only about 4 percent of Bloc production of all types of machine tools. Imports of antifriction bearings constitute about 11 percent of Bloc production. It is quite possible that some of these imports have been stockpiled.

In the case of electrical machinery, particularly heavy motors, generators, and electronic equipment, the Soviet Bloc is much weaker. Imports of heavy motors and generators probably comprise about a fifth of annual Bloc supply. Since about 70 percent of all heavy generators are used to equip electric power stations, loss of imports would almost surely slow down the planned rate of growth of electric power. It might take as long as 3 years to raise domestic production by a fourth, the increase needed to replace all lost imports. Moreover, most of the increase would probably not take place until the third year because of the difficult problems encountered in designing and constructing heavy generators and building the necessary capital equipment.* The problems caused by loss of heavy motors might be even more serious because they tend to be more custom built than generators and hence cannot be easily interchanged among different uses. Replacement could occur at about the same rate as for heavy generators.

* Although heavy generators are not mentioned specifically in the newly announced Soviet Fifth Five Year Plan, the ambitious goals for steam and hydroturbines suggest a possible speed-up in production in that area. Production of steam turbines is planned to increase by about 28 percent annually; hydroturbines, by 131 percent.

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Of all the known problem areas, replacement of imported electron tubes and components is likely to be most troublesome to the Soviet Bloc. The main effect of trade severance would not be the loss of imported tubes but rather the decline in domestic production of tubes caused by loss of imported materials used for their production. These materials include capacitor paper, molybdenum and tungsten wire, molybdenum and tungsten alloys, nickel cathode sleeves, and mica. Loss of these imports might immediately reduce Bloc production of tubes by as much as a half.* EIC believes that at least 4 years would be required before domestic production of these items could expand sufficiently to raise domestic production of tubes back to its present rate and also to replace lost imports of tubes. On the other hand, there is evidence that the Bloc has been importing various items of capital equipment needed to produce the currently imported materials, including machines for making capacitor paper, diamond dies for wire drawing, and wire-drawing machinery. It is therefore quite possible that the problem of replacing imported materials already has been seriously attacked in the Bloc, and the time required for adjustment after trade severance may be considerably shorter than 4 years. In addition, the advent of the transistor could change the whole picture so far as electron tubes are concerned by changing the materials requirements.

A rough estimate of annual costs during the adjustment period is presented in Table 10** and Figure 1.*** Two types of costs are distinguished: (1) costs attributable to unreplaced imports and (2) net costs incurred in replacing imports. In the absence of stockpiles, the costs attributable to unreplaced imports would be roughly equal to the ultimate replacement cost for ordinary items and to a multiple of replacement costs for bottleneck items.**** For this estimate, bottleneck costs are taken as on the average three times replacement costs. Calculated on this basis, which represents a rough guess, costs attributable to all unreplaced imports would run at an annual rate of about 26 billion rubles immediately after trade severance. Such a high cost rate would not persist for long because

* It is doubtful that some of these materials could ever be effectively embargoed since they are so easily smuggled, being compact and used in relatively small quantity.

** Table 10 follows on p. 29.

*** Figure 1 follows p. 30.

**** [Costs would actually be equal to, or a multiple of, the internal value of these items, which would probably be lower than ultimate replacement costs.]

Table 10

Estimated Annual Rates of Cost during the Adjustment Period
after Complete Severance of East-West Trade a//*

Type of Cost	Annual Rate of Cost					(Billions of Rubles)
	Upon Severance of Trade	End of First Year	End of Second Year	End of Third Year	End of Fourth Year	
Cost Attributable to Unreplaced Imports <u>b/</u>						
Bottleneck Items <u>c/</u>	19.2	9.5	5.0	0.4	0.0	
Other Items <u>d/</u>	6.4	1.1	1.0	0.6	0.0	
Total	<u>25.6</u>	<u>10.6</u>	<u>6.0</u>	<u>1.0</u>	<u>0.0</u>	
Net Cost of Replacing Imports Cost of Producing Imports <u>e/</u>	0.0	8.1	9.7	11.6	12.3	
Value of Exports <u>f/</u>	-5.2	-5.2	-5.2	-5.2	-5.2	
Net Cost	<u>-5.2</u>	<u>2.9</u>	<u>4.5</u>	<u>6.4</u>	<u>7.1</u>	
Total Cost Attributable to Trade Severance	<u>20.4</u>	<u>13.5</u>	<u>10.5</u>	<u>7.4</u>	<u>7.1</u>	

* Footnotes to Table 10 follow on p. 30.

Table 10

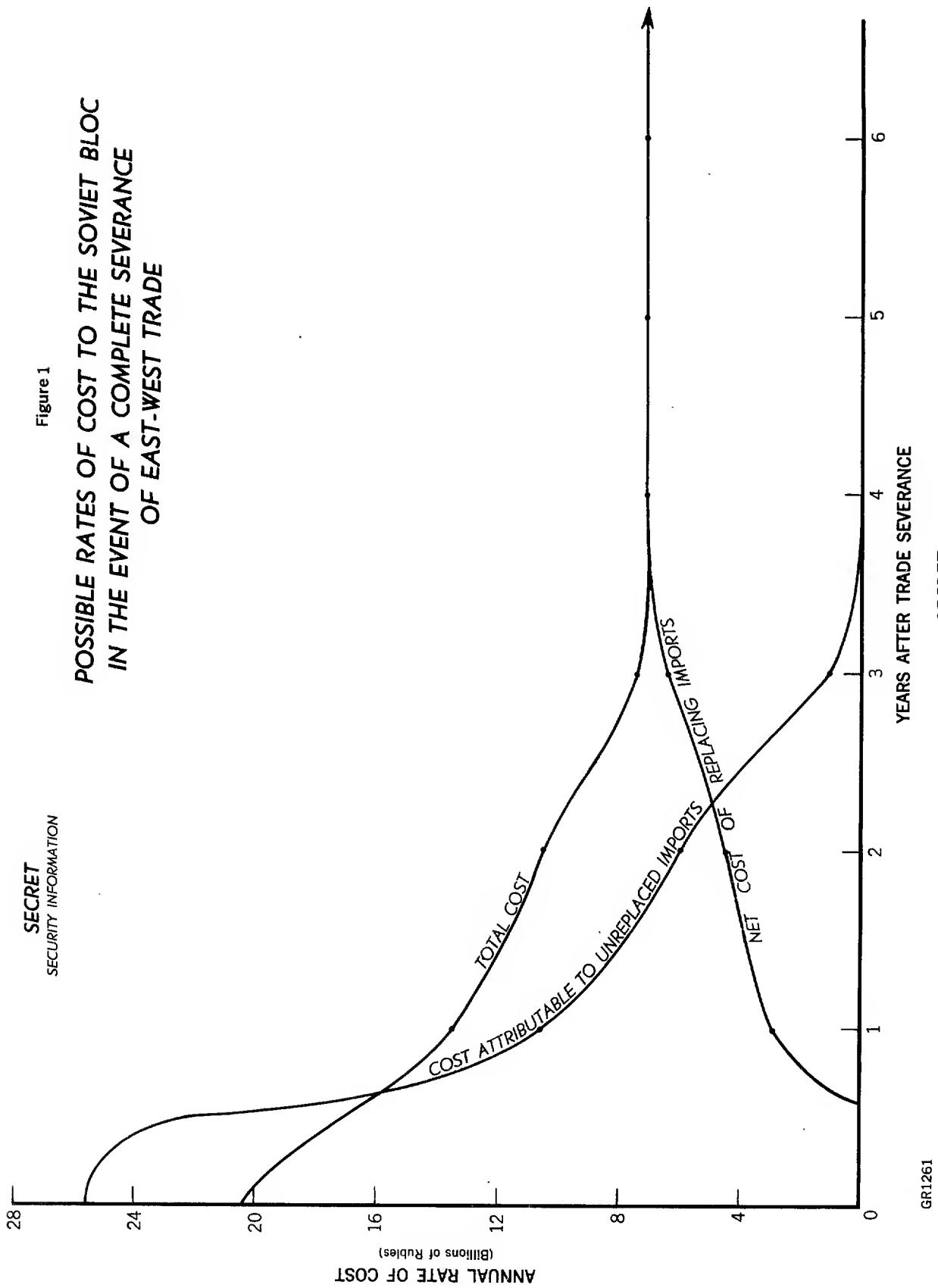
Estimated Annual Rates of Cost during the Adjustment Period
after Complete Severance of East-West Trade a/
(Continued)

- a. See Table 8.
- b. The ruble-dollar cost ratio is taken as 8 to 1 (see Table 7). The dollar values of unreplaced imports are derived from Table 8.
- c. Bottleneck items include electron tubes and components, chemicals, crude rubber, electrical machinery, ships and boats, and "commodities not studies" (see Table 8). For the first year, a third of the value of all other imported items also is added, yielding 50 percent of the total value of imports as bottleneck items. The latter items would be replaced in the first year and therefore need not be considered in subsequent years. Bottleneck costs are taken as triple the ruble value of unreplaced bottleneck items.
- d. For the first year these are all imports except bottleneck items. For succeeding years, wool is the only item included.
- e. The ruble-dollar cost ratio is taken as 8 to 1 (see Table 7). Dollar values are given in Table 8.
- f. The ruble-dollar cost ratio is taken as 3 to 1 (see Table 7). The total value of exports is \$1.7 billion.

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Figure 1

**POSSIBLE RATES OF COST TO THE SOVIET BLOC
IN THE EVENT OF A COMPLETE SEVERANCE
OF EAST-WEST TRADE**



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of the rapidity with which most imports could be replaced. By the end of the first year, the rate of replacement probably would account for all but about 4.3 billion rubles worth of imports, about three-fourths of which represent bottleneck items. Calculated on the same basis as above, costs attributable to unreplaced imports therefore would have fallen to an annual rate of about 10.6 billion rubles by the end of the first year. By the end of the second year, costs would have fallen to about 6 billion rubles; and by the end of the third, to less than 1 billion rubles.

At the same time that costs attributable to unreplaced imports were falling, the net costs of replacing imports would be rising, approaching long-run costs of 7.3 billion rubles within a 4-year period (see Table 10*). Immediately after trade severance, net costs of replacing imports should be considered as negative: that is, the Soviet Bloc actually would receive a net gain in the form of goods previously exported. The fact that these goods could not directly substitute for imports is reflected in costs attributable to unreplaced imports. The benefits gained from former exports would soon be overbalanced by rising costs of production, as expansion of the import-replacing industries occurred.

The above discussion has been in terms of rates of cost. On the basis of those rates, aggregate costs for each of the years within the adjustment period might be roughly as follows: 17 billion rubles in the first year, 11 billion in the second, 9 billion in the third, and 7.5 billion in the fourth. The fractions of Soviet Bloc gross national product for each successive year would be roughly 1.3 percent, 0.8 percent, 0.6 percent, and 0.5 percent.** Note that these estimates are subject to a much wider margin of error than the estimate of long-run annual cost.

Some special difficulties inherent in estimation of short-run costs should be recapitulated. First, even with detailed knowledge of an economy, bottleneck costs can only be approximated. In the case of the Soviet Bloc, the factor used to compute bottleneck costs is nothing more than an informed guess. Second, it is impossible to forecast the policy that would be followed in expanding capital facilities in the import-replacing industries. In this estimate it has been

* P. 29, above.

** Soviet Bloc gross national product is taken as 1,350 billion rubles in the first year (1952), with an increase of 6 percent annually.

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assumed that expansion would be accomplished by diverting capital from other sectors of the economy without any net increase in investment as a whole. If the strategic time horizon of the Bloc were very short, it might well choose to step up the rate of investment, in which case the full cost of the net investment program would have to be borne in the adjustment period as a nonrecurring cost. Third, trade data are not sufficiently refined to allow for complete confidence that all serious bottleneck problems have been taken into account. Fourth, estimates of the rate of replacement of imports must necessarily be subject to sizable error because knowledge of the details of organization and technology within Bloc industry is limited. Fifth, estimates are weakened by lack of definitive knowledge of the size and composition of stockpiles and the status of other preparations in anticipation of trade severance. Some of these factors suggest that the estimates of short-run costs might be too low, whereas others suggest equally strongly that they might be too high.

The way in which costs might accumulate over time is indicated in Figure 2.* Probable cumulative costs are depicted as a range. The upper limit is based on long-run annual costs of 11 billion rubles and on transitional costs derived from that figure. The lower limit is based on long-run annual costs of 5 billion rubles and on transitional costs derived from that figure. The best estimate within the probable range is based on long-run annual costs of 7.3 billion rubles and on transitional costs derived from that figure. A minimum estimate is also shown, based on minimum long-run costs and on full absorption of transitional costs by drawing on stockpiles, assumed for this purpose to be adequate for such absorption. Comparison of the minimum estimate with the lower limit of probable cumulative costs points up a fact that otherwise might escape notice, namely, that the short-run impact of trade severance becomes less and less significant the longer the period of time over which the total damage is to be assessed.

E. Effects of a Complete Severance of East-West Trade on the Economic Capabilities of the Soviet Bloc.

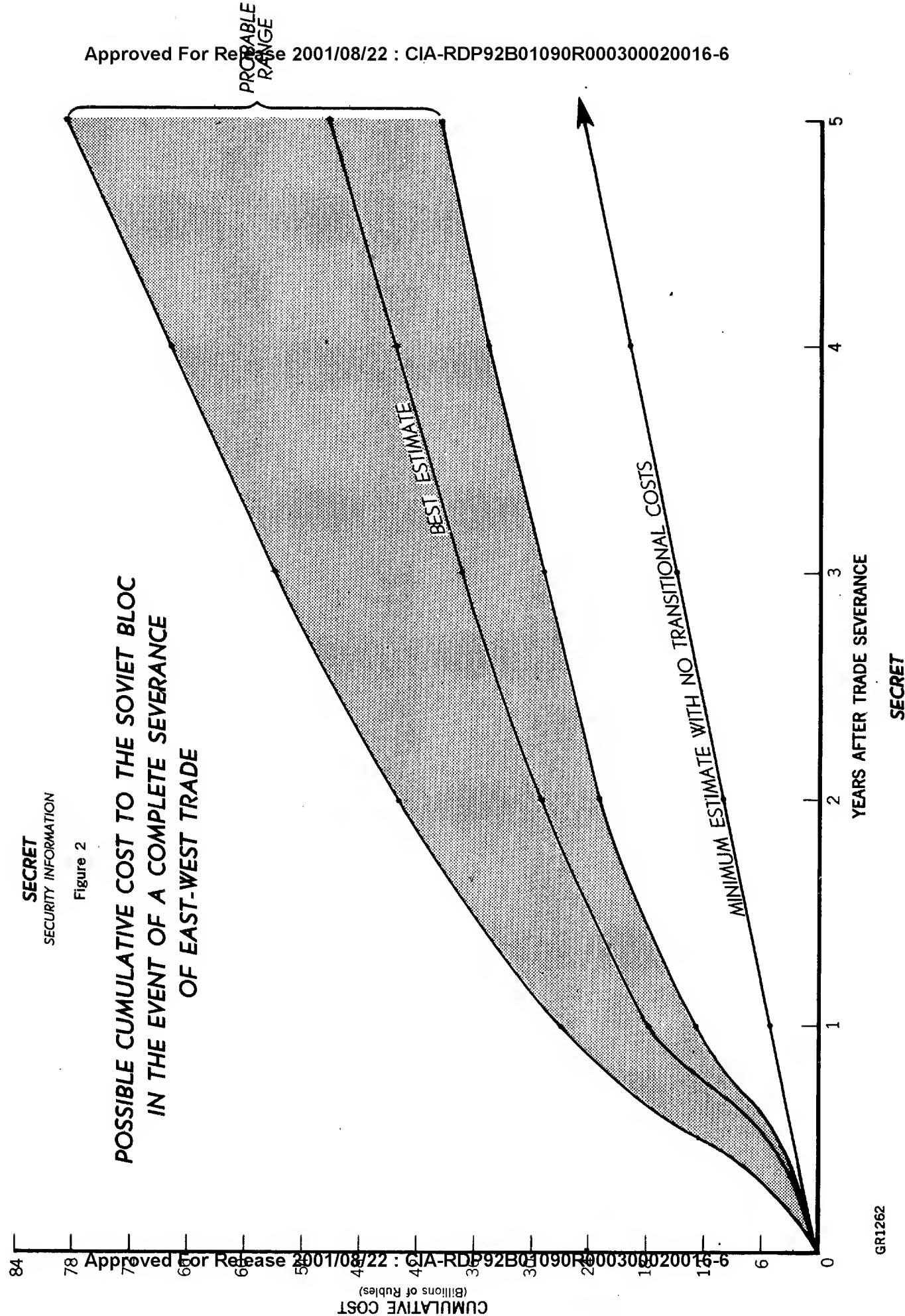
The economic capabilities of the Soviet Bloc would be reduced to the extent that trade severance caused the output of munitions (defined in a broad sense) to be lower than it otherwise would be in either the immediate or more remote future. 12/ Put in another way, costs would have no effect on economic capabilities for war to the

* Figure 2 follows p. 32.

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Figure 2

**POSSIBLE CUMULATIVE COST TO THE SOVIET BLOC
IN THE EVENT OF A COMPLETE SEVERANCE
OF EAST-WEST TRADE**



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extent (and only to the extent) that they can be absorbed either by the civilian sector or by drawing down stockpiles that have been accumulated specifically to meet such contingencies. Civilian consumption probably accounts for 55 to 65 percent of Soviet Bloc gross national product, the investment sector probably accounts for another 20 to 25 percent, and the military sector probably receives from 10 to 15 percent.

It is doubtful that short-run costs could be shifted onto consumers to any significant extent. The windfall of foodstuffs formerly exported would, in fact, make possible a temporary (and slight) rise in consumption levels. On the other hand, since only a small fraction of Soviet Bloc imports can be considered as entering directly into production of civilian goods, reduction of consumption levels -- although it would provide resources for use in import-replacing industries -- could not be expected to absorb much of the short-run shock attributable to unreplaced imports. At least over the adjustment period, therefore, the investment and military sectors could be expected to bear the brunt of costs, except to the extent that contingency stockpiles existed. This might mean that the combined production of investment goods and munitions could be 3 to 4 percent less in the first year after trade severance than it otherwise would have been. In succeeding years the percentages would be smaller. Of course reductions for some specific items could be expected to be much larger.

Over the longer haul it is entirely possible that costs could be absorbed by the civilian sector. If economic costs eventually settled at less than one-half of one percent of Soviet Bloc gross national product, these costs could be fully absorbed by a reduction in civilian consumption levels of about 1 percent below what they would otherwise have been. The troublesome question here is: If such a reduction is possible without endangering achievement of planned goals, why have the Communists failed to make the reduction up to now? There are certainly sound reasons for believing that living standards are being maintained at the minimum level required to prevent deterioration of productivity and allegiance under cold-war conditions. Nevertheless, the point remains that all that would be needed to absorb the costs of trade severance is a smaller rise in consumption than would occur otherwise. Moreover, trade severance initiated by the West might provide Bloc leaders with a powerful propaganda weapon that could be used to induce acceptance of smaller increases in consumption levels:

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The effect of trade severance on economic capabilities for waging hot war would depend on the nature of the strategic context. Two primary dimensions are (1) the length of the breathing spell between trade severance and onset of war and (2) the intensity and duration of the expected war. In general the longer the breathing spell, the wider the diffusion of cost to nonstrategic sectors of the economy that would be accomplished by the Bloc. As pointed out above, the composition of Bloc imports is such that severance would have an inevitable immediate impact on investment or military production, or both, if no allowance is made for unknown stockpiles. After a moderate adjustment period, during which lost imports would be replaced, the annual strategic cost would decline and would be diffused over a larger area of the Bloc economy. It must be recognized that the cumulative cost would continually grow, but at a diminishing percentage rate. The longer the adjustment period, the lower the significance of the heavier initial costs of trade severance.

Trade severance would have a negligible effect on economic capabilities to support a brief and limited war, no matter when it started, because of the sizable inventories of weapons already available to the Soviet Bloc. Trade severance could induce a noticeable but far from crippling reduction in economic capabilities to support a war of attrition, started shortly after severance. The same might hold for a war of attrition started several years after severance, although it is conceivable in this case that severance might actually strengthen Bloc economic capabilities if the loss of trade in fact shocked the Bloc into stepping up its self-sufficiency program at the expense of the civilian sector.

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APPENDIX

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